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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/575,529	01/08/2007	Masaaki Oka	524168-0350181(SUZ0031-US	9408

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EXAMINER

FAN, CHARLES C

ART UNIT	PAPER NUMBER
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2628

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/575,529	Applicant(s) OKA, MASA AKI	
	Examiner CHARLES FAN	Art Unit 2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>4/10/2006</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

1. Claims 12-13 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claim does not expressly or implicitly require performance of any of the steps by a machine, such as a general-purpose computer. There are several tests that can be applied to determine whether claims are directed toward statutory subject matter. They include: (1) a process under 35 USC 101 requires a transformation of physical subject matter, tangible or intangible, to a different state or thing; (2) the “abstract idea” exception; and (3) the claim must recite a practical application, that is a useful, concrete, and tangible result. It is noted that claims that are broad enough to read on statutory and nonstatutory subject matter are considered nonstatutory. Claims 12-13 are directed to a computer program and do not require a transformation any physical subject matter, tangible or intangible, into a different state or thing. The claims are drawn simply to the computer software (i.e. software application), which is merely a set of instructions capable of being executed by a computer when the computer software is run on a computer for displaying a smear image taken with a scale factor. It is noted that claims to the computer program/software *per se* are not a process and without the computer-readable medium needed to realize the computer program/software’s functionally are nonstatutory functional descriptive material. See MPEP 2106 IV B 1(a). Specifically, a claim to computer program or a tangible computer-readable medium encoded with a computer program/software is statutory because it is a computer element, which defines structural and

functional interrelationships between the computer program and other component of a computer, which permits the computer program/software's functionality to be realized.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-2, 10, 12, 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Furusawa et al. (US Pat. No. 5,050,227).

In re claim 1, 10, 12, 14, Furusawa et al. discloses an image processor for use in drawing an image to a memory having a two dimensional matrix of pixel drawing regions (Fig. 1, 9), each of the pixel drawing regions representing a single pixel in the image, said image processor comprising: a plurality of relative orientation detection filters each representing a distinguishing feature of a relative orientation of an edge segment to be drawn to the memory (Fig. 8, 81a-d), drawing means for drawing the image to the memory or a buffer having the same structure as the memory (fig. 1, S10), detection means for detecting a connected sequence of pixel drawing regions making up an edge in the image drawn by said drawing means (Fig. 2, S6), and detecting the relative orientation of the connected sequence of pixel drawing regions by means of selecting out one relative orientation detection filter representing the distinguishing feature that is closest to the distinguishing feature of the connected sequence of pixel drawing regions in question (Fig. 2 S6), and smoothing means for smoothing a pixel value of each pixel in the connected sequence

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of pixel drawing regions on the edge using smoothing coefficients (Fig. 2, S8) the smoothing coefficients being either computed depending on the relative orientation detected by said detection means or obtained from outside.

In re claim 2, Furusawa et al. discloses plurality of relative orientation detection filters is a two-dimensional matrix of predetermined orientation coefficients, the orientation coefficients including zero orientation coefficients each having a value of zero and non-zero orientation coefficients each having a value other than zero, the non-zero orientation coefficients being aligned relative to each other in a predetermined direction (Fig. 4a-d), said detection means performing convolution of all orientation coefficients contained in said relative orientation detection filters (Fig. 8), with each pixel value of the connected sequence of pixel drawing regions making up the edge, said detection means then selecting out one relative orientation detection filter for which the convolution result in a single direction exceeds a predetermined threshold value and yields the largest result (Column 5, lines 43-55), as the relative orientation filter having the distinguishing feature that is closest to the distinguishing feature in the subject direction (Fig. 4a-d, shows the direction they are relative to).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Furusawa et al. (US Pat. No. 5,050,227) and Hiroshige et al. (US Pat. No. 7,167,595).

In re claim 3, Furusawa et al. discloses the smoothing means has a plurality of smoothing filters each containing predetermined smoothing coefficients, the smoothing coefficients including zero smoothing coefficients each having a value of non-zero smoothing coefficients each having a value other than zero, said smoothing filter being linked to one of said relative orientation detection filters in such a manner that the non- zero smoothing coefficients being arranged in the same pattern as the non-zero orientation coefficients in said relative orientation detection filters (Fig. 6A-D), said smoothing means identifying, in response to the selection of the relative orientation detection filter by said detection means, the smoothing filter that is linked to the selected relative orientation detection filter, performing convolution of the smoothing coefficients of the identified smoothing filter individually with each pixel value of the connected sequence of pixel drawing regions making up the edge, and replacing a target pixel value in the connected sequence of pixel drawing regions with the convolution result, thereby smoothing file focused pixel value (Column 6 lines 38-56). It is noted that Furusawa et al. does not disclose the smoothing coefficients are not zero. However, Hiroshige et al. discloses smoothing coefficients

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that are zero (Fig. 10). It would have been obvious to one of ordinary skill to replace the non-zero only coefficients of Furusawa et al. with the zero and nonzero coefficient of Hiroshige et al. as a another way to smooth the edges.

7. Claims 4-5, 11, 13, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Furusawa et al. (US Pat. No. 5,050,227) in further view of Wang (US Pat. No. 6,798,422).

In re claim 4, 11, 13, 15, it is noted that Furusawa et al. does not explicitly disclose performing interpolation with the relative orientations. However, Wang et al. discloses performing interpolation with the relative orientations (Column 6, lines 12-19). It would have been obvious to one of ordinary skill to combine the Anti-aliasing device of Furusawa et al. with the interpolation of Wang et al. with the motivation of smooth edges.

In re claim 5, it is noted that Furusawa et al. does not explicitly disclose convolution yields the first, second, and third largest result. However, It would be inherent in the system of Furusawa et al. in it 3x3 pixel convolutions that the filter that the largest would contain the first largest the second largest and the third largest as it requires the largest value of the three combined.

8. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Furusawa et al. (US Pat. No. 5,050,227) in further view of Wang (US Pat. No. 6,798,422) and Morimoto (E Pat. App. 0,686,941).

In re claim 9, Furusawa et al. discloses smoothing a predetermined angle with respect to the horizontal or vertical axis of the matrix (Fig. 4A-D) and when at least a predetermined number of pixel drawing regions having the same relative orientation are arranged in sequence (Column 5, lines 43-55). It is noted that Furusawa et al. does not explicitly disclose only smoothing those of the edges. However, Morimoto discloses smoothing only those that are edges (Page 6 lines 43-45). It would have been obvious to one of ordinary skill to combine the anti-aliasing of Furusawa et al. with the only smoothing edges of Morimoto with the motivation of less processing necessary.

9. Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Furusawa et al. (US Pat. No. 5,050,227) in further view of Wang (US Pat. No. 6,798,422) and Hiroshige et al. (US Pat. No. 7,167,595).

In re claim 6, Furusawa et al. discloses convolution of the smoothing coefficients of that smoothing filter individually with each pixel value of the connected sequence of pixel drawing regions making up the edge, and replaces a target pixel value in the connected sequence of pixel drawing regions with the convolution result, thereby smoothing the focused pixel value (Column 8, lines 34-43).

In re claim 7, it is noted that Furusawa et al. and Wang et al. does not explicitly disclose said smoothing means performing convolution of all smoothing coefficients contained in the smoothing filter in question, with a target pixel in the connected sequence of pixel drawing

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regions making up the edge in such a manner that the center of the smoothing filter is matched with the target pixel. However, Hiroshige et al. discloses smoothing means performing convolution of all smoothing coefficients contained in the smoothing filter in question, with a target pixel in the connected sequence of pixel drawing regions making up the edge in such a manner that the center of the smoothing filter is matched with the target pixel (Column 8, lines 17-24). It would have been obvious to one of ordinary skill to combine the anti-aliasing of Furusawa et al. and Wang et al. with the pixel centering of Hiroshige et al. with the motivation of different smoothing method.

10. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Furusawa et al. (US Pat. No. 5,050,227) in further view of Wang (US Pat. No. 6,798,422), Hiroshige et al. (US Pat. No. 7,167,595), and Nemoto et al. (US Pat. No. 5,870,504).

In re claim 8, Furusawa et al., Wang et al., and Hiroshige et al. does not explicitly disclose the smoothing filter is normalized. However, Nemoto et al. discloses the smoothing filter is normalized (Column 3, lines 25-37). It would have been obvious to one of ordinary skill to combine the anti-aliasing of Furusawa et al., Wang et al., and Hiroshige et al. with the normalized pattern of Nemoto et al. with the motivation of better scaling of the smoothing effect.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Shan (US Pat. No. 7,161,602) discloses pixel interpolation, Li (US Pat. No. 6,873,741) discloses nonlinear edge enhancement, Drewry (US Pat No. 5,748,178) discloses efficient anti-aliasing.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHARLES FAN whose telephone number is (571)270-3550.

The examiner can normally be reached on mon- fri 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Xiao Wu can be reached on (571)272-7761. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CFan

/XIAO M. WU/
Supervisory Patent Examiner, Art Unit 2628